

CLAIMS

What is claimed is:

1. A fiber comprising:
a core that is formed from a core material, and a sheath that is formed from a sheath material and at least partially surrounds the core, wherein the sheath material comprises a fluoropolymer.
2. The fiber of claim 1 wherein the sheath material has an apparent shear viscosity V_S that is equal to or less than an apparent shear viscosity of the core material V_C .
3. The fiber of claim 2 wherein V_C is at least 1.3 times V_S .
4. The fiber of claim 2 wherein V_C is at least 1.6 times V_S .
5. The fiber of claim 1 wherein the core has a weight W_C , the sheath has a weight W_S , and wherein W_S/W_C is no higher than 0.43.
6. The fiber of claim 1 wherein the core has a weight W_C , the sheath has a weight W_S , and wherein W_S/W_C is no higher than 0.12.
7. The fiber of claim 1 wherein the core material comprises a polymer selected from the group consisting of a poly(ethylene terephthalate), a poly(ethylene naphthalate), a polyamide, and a polyolefin.
8. The fiber of claim 7 wherein the core material comprises poly(ethylene terephthalate).
9. The fiber of claim 1 wherein the sheath material comprises a melt-processable fluoropolymer.
10. The fiber of claim 9 wherein the melt-processable fluoropolymer is selected from the group consisting of poly(vinylidene fluoride), ethylene-chloro-tri-fluoro-ethylene, and ethylene-tetrafluoro-ethylene.

11. The fiber of claim 1 wherein the core material comprises poly(ethylene terephthalate) and the sheath material comprises poly(vinylidene fluoride).
12. The fiber of claim 1 wherein the core has a weight W_C , the sheath has a weight W_S , W_S/W_C is no higher than 0.43, and wherein the sheath is formed in a spin pack with a sheath material conduit at a ratio of open volume to sheath material mass flow of no more than 1.13.
13. The fiber of claim 1 wherein the core has a weight W_C , the sheath has a weight W_S , W_S/W_C is no higher than 0.25, and wherein the sheath is formed in a spin pack with a sheath material conduit at a ratio of open volume to sheath material mass flow of no more than 1.7.
14. The fiber of claim 1 wherein the core has a weight W_C , the sheath has a weight W_S , W_S/W_C is no higher than 0.12, and wherein the sheath is formed in a spin pack with a sheath material conduit at a ratio of open volume to sheath material mass flow of no more than 3.4.
15. A method of producing a fiber comprising:
providing a core material and a sheath material that comprises a melt-processable
fluorine-containing polymer; and
providing a spin pack and forming a sheath core fiber with a sheath and a core from the
sheath material and the core material using the spin pack, wherein the sheath at
least partially surrounds the core.
16. The method of claim 15 wherein the core has a weight W_C , the sheath has a weight W_S , W_S/W_C is no higher than 0.43, and wherein the spin pack has a sheath material conduit having a ratio of open volume to sheath material mass flow of no more than 1.2.
17. The method of claim 15 wherein the core has a weight W_C , the sheath has a weight W_S , W_S/W_C is no higher than 0.25, and wherein the spin pack has a sheath material conduit having a ratio of open volume to sheath material mass flow of no more than 1.7.

18. The method of claim 15 wherein the core has a weight W_C , the sheath has a weight W_S , W_S/W_C is no higher than 0.12, and wherein the spin pack has a sheath material conduit having a ratio of open volume to sheath material mass flow of no more than 3.4.
19. The method of claim 15 wherein the sheath material has an apparent shear viscosity V_S that is equal to or less than a apparent shear viscosity of the core material V_C .
20. The method of claim 15 wherein the core material comprises a polymer selected from the group consisting of a poly(ethylene terephthalate), a poly(ethylene naphthalate), a polyamide, and a polyolefin, and wherein the sheath material is selected from the group consisting of poly(vinylidene fluoride), ethylene-chloro-tri-fluoro-ethylene, and ethylene-tetrafluoro-ethylene.